BASIC ALGEBRA ASSESSMENT SAMPLE

You have up to 1 hour to complete **25 multiple choice questions**.
Calculators and dictionaries are NOT allowed.

PART A - Basic Concepts

Choose the letter of the correct answer and place it in the blank space at the right.

1. {0,1,2,3,4,.....} is called the set of:
   a) natural numbers b) arithmetic numbers
   c) integers d) whole numbers 1. _____

2. Which one of the following is FALSE ?
   a) 3 > -2 b) 6 + (-2) > 6 + (-1)
   c) -5 < -1 d) $|-7| = 7$ 2. _____

3. The reciprocal of $3\frac{3}{4}$ is:

   a) $-3\frac{3}{4}$ b) $\frac{4}{9}$ c) $\frac{15}{4}$ d) $\frac{4}{15}$ 3. _____

4. For which one of the following is the answer NOT equal to 0:

   a) 0^5 b) 5 x 0 c) $\frac{5}{0}$ d) $\frac{0}{5}$ 4. _____

5. What does x^3 represent if x = 2?

   a) 2 • 2 •2 b) 2 + 3 c) 2 x 3 d) 2 + 2 + 2 5. _____

PART B - Operations with algebraic expressions - Signed Numbers

Perform the indicated operations:

1. -5 + (-7) = _____ 2. -2 - (-9) = _____

3. $(-3) \bullet (-2)^2$ = _____ 4. 3[2 - (3 • 4 - 15)] + 5 = _____

5. $\frac{10.(-3)}{(-15)}$ = _____

6. Evaluate if x = 5 and y = -2: 4x + 3y = 6. _____

7. Collect like terms: 4x - y + 8 + 3y - 2x - 4 = 7. _____

8. Remove brackets and collect like terms:

   (2x - 3y) + 3(x + y) - (4x - 5y) 8. _____

9. Multiply: $x(3x^2 + 4x - 5)$ 9. _____

10. Factor: 4a + 12 10. _____

PART C - Solving equations

Solve the following equations for "x" showing all necessary steps:

1. $5x + 2 = 17$ 1. _____

2. $4x + 3(x + 2) = 20$ 2. _____

3. $\frac{1}{3}x + \frac{1}{5}x = 8$ 3. _____

4. $6x - 4 = 2x + 12$ 4. _____

5. $\frac{x}{3} = \frac{12}{18}$ 5. _____

PART D - Solving word problems using equations

1. Twice a number is subtracted from 5 and the result is 10. Pick the correct equation to find the number.

   a) $x^2 - 5 = 10$ b) $5 - 2x = 10$

   c) $2x - 5 = 10$ d) $5 - x^2 = 10$

2. A man is three times as old as his daughter. The sum of their ages is 52. Pick the correct equation to find their ages.

   a) $x^3 + x = 52$ b) $x + x + 3 = 52$

   c) $x + 3x = 52$ d) $3(x + x) = 52$

3. If a number is increased by 20% the result is 70. Pick the correct equation to find the number.

   a) $x + .02x = 70$ b) $x + .2x = 70$

   c) $x + 20x = 70$ d) $x + 20 = 70$

4. The perimeter of a picture frame is 34 inches. Pick the correct equation to find the dimensions of the frame if the length of the frame is 3 inches more than the width.

   a) $x + 3x = 34$ b) $x + x + 3 = 34$

   c) $x + x + 3 = 17$ d) $2x + 2x + 3 = 34$

5. The sum of three consecutive integers is 105. Pick the correct equation to find the numbers.

   a) $x + 2x \div 3x = 105$ b) $3x = 105$

   c) $x + x + 1 + x + 2 = 105$ d) $x + 3 = 105$

Answer key for Basic Algebra

PART A	PART B	PART C	PART D
1. d	1. –12	1. x = 3	1. b
2. b	2. 7	2. x = 2	2. c
3. d	3. –12	3. x = 15	3. b
4. c	4. 20	4. x = 4	4. c
5. a	5. 2	5. x = 2	5. c
	6. 14		
	7. $2x + 2y + 4$		
	8. $x + 5y$		
	9. $3x^3 + 4x^2 - 5x$		
	10. $4a + 12 = 4(a + 3)$		